

## CLAIMS

What is claimed is:

1. A system for identifying visual and neurological abilities, for improving visual and neurological performance, or for both, the system comprising:
  - a client terminal;
  - a host server communicatively coupled to the client terminal; and
  - a host storage device comprising a computer-readable medium communicatively coupled to the host server having stored therein one or more sequences of processor executable instructions for identifying visual and neurological abilities, for improving visual and neurological performance, or for both.
2. The system of claim 1, wherein the client terminal and the host server are communicatively coupled via a communications network.
3. The system of claim 2, wherein the communications network comprises the Internet.

4. The system of claim 1, wherein the client terminal comprises:

a processor;

a client storage device comprising a computer-readable  
5 medium communicatively coupled to the processor;

a persistent memory communicatively coupled to the processor;

a display device communicatively coupled to the processor;

10 an input device communicatively coupled to the processor;

one or more sequences of processor executable instructions for displaying one or more images on the display device that aid in identifying visual and  
15 neurological abilities, aid in improving visual and neurological performance, or both, the instructions located on the client storage device; and

a communication interface communicatively coupled to the processor, the interface configured to transmit data to  
20 and from the host server via the communications network.

5. The system of claim 1, wherein the host server further comprises:

- a processor;
- a persistent memory communicatively coupled to the
- 5 processor; and
- a communication interface communicatively coupled to the processor, the interface configured to transmit data to and from the client terminal via the communications network.

10 6. The system of claim 5, wherein the host server further comprises:

- a user database communicatively coupled to the processor for storing user information.

15 7. The system of claim 5, wherein the one or more sequences of processor executable instructions stored in the host storage device causes the processor to perform a number of acts, said acts comprising:

- selecting parameters and delivering them to the client
- 20 terminal;
- receiving a set of user inputs from the client terminal;
- analyzing the set of user inputs; and

generating one or more further parameters to deliver to the client terminal based at least in part upon the analysis performed on the set of user inputs.

5        8.    The system of claim 7, wherein the acts performed by the one or more sequences of processor executable instructions further comprise authenticating a user.

10       9.    The system of claim 4, wherein the one or more sequences of processor executable instructions stored in the client storage device causes the processor to perform a number of acts, said acts comprising:

generating an image;  
receiving an input from a user based on the user's  
15    perception of the image; and  
generating a further image based on the input.

20       10.   The system of claim 9, wherein the step of generating a further image is carried out by modifying one or more parameters of the image.

11.    The system of claim 9, wherein the step of generating a further image is carried out by selecting a new image from a predefined set of images.

12. The system of claim 9, wherein the step of  
generating a further image is carried out using a  
configuration that is more difficult to perceive if the user  
5 does accurately perceive a characteristic of the image.

13. The system of claim 9, wherein the step of  
generating a further image is carried out using a  
configuration that is less difficult to perceive if the user  
10 does not accurately perceive a characteristic of the image.

14. The system of claim 9, wherein the acts further  
comprise generating a series of images used to ascertain the  
visual and neurological perception ability of the user.  
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15. The system of claim 9, wherein the step of  
generating a further image is carried out using a  
configuration that has a different contrast level than the  
image.  
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16. The system of claim 9, wherein the step of  
generating a further image is carried out using a  
configuration that has a different contour than the image.

17. The system of claim 9, wherein the step of generating a further image is carried out using a configuration that has a different spatial frequency than the image.

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18. The system of claim 9, wherein the step of generating a further image is carried out using a configuration that has different spacing attributes than the image.

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19. The system of claim 9, wherein the step of generating a further image is carried out using a configuration that has a different orientation than the image.

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20. The system of claim 9, wherein the image comprises one or more Gabor patches.

21. The system of claim 9, wherein the image comprises one or more lines.

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22. The system of claim 9, wherein the image comprises a plurality of objects arranged to form a contour.

23. A method for remotely identifying visual and neurological abilities, for improving visual and neurological performance, or for both, the method comprising:

5 at a host terminal:

sending parameters to a client terminal;

at the client terminal:

receiving the parameters;

generating a set of images based upon the

10 parameters;

presenting the set of images on a display screen;

receiving an input from a user based on the user's

perception of the set of images;

generating a further set of images based at least

15 in part upon the parameters and based at

least in part upon the user input;

generating user performance data based at least in

part upon the user input;

sending the user performance data to the host

20 terminal;

at the host terminal:

receiving the user performance data; and

analyzing the user performance data.

24. The method of claim 23, further comprising:  
at the client terminal:

5 repeating the steps of generating a set of images,  
presenting the set of images, receiving an  
input from a user, and generating a further  
set of images until a predefined user goal  
has been reached.

10 25. The method of claim 23, further comprising:  
at the client terminal:

15 sending a request to the host terminal for access  
to software for identifying visual and  
neurological abilities and improving visual  
and neurological performance.

20 26. The method of claim 23, further comprising:  
at the client terminal:

calibrating the user's visual and neurological  
perception ability;

generating calibration data; and

wherein the step of generating a set of images is  
performed based at least in part on the  
calibration data.



27. The method of claim 23, further comprising:  
at the host terminal:

generating a further set of parameters based at  
least in part upon the analysis of the user  
performance data.

28. A method for identifying visual and neurological  
abilities and improving visual and neurological performance  
via an Internet website, comprising:

providing the Internet website, wherein the website  
allows a user to access software for identifying  
visual and neurological abilities and improving  
visual and neurological performance;  
generating a web page in response to a request to  
access the software, wherein the web page contains  
an image;  
sending the web page to the user over the Internet;  
receiving an input from the user based on the user's  
perception of the image; and  
generating a subsequent web page based at least in part  
upon the user's input, wherein the subsequent web  
page contains a further image.

29. The method of claim 28, wherein the further image is generated by modifying one or more characteristics of the image.

30. The method of claim 28, wherein the steps of generating the web page, sending the web page, and generating a further web page are repeated until a desired level of improvement has been achieved.

31. The method of claim 28, further comprising authenticating the user to determine if the user is authorized to access the system.

32. The method of claim 28, wherein the web page and the subsequent web page are generated by a processor that is communicatively coupled to one or more sequences of processor executable instructions for identifying visual and neurological abilities and improving visual and neurological performance.

33. The method of claim 28, wherein at least a portion of any data sent over the Internet is encrypted.

34. The method of claim 28, wherein at least a portion of the data sent over the Internet uses certificates for security.

5 35. The method of claim 28, further comprising evaluating the visual and neurological perception ability of the user by evaluating the user's responses to a series of images.

10 36. The method of claim 28, wherein the image and the further image comprise one or more Gabor patches.

37. The system of claim 9, wherein the step of generating a further image is carried out using a  
15 configuration that has a different size than the image.

38. The system of claim 9, wherein the step of generating a further image is carried out using a configuration that has a different exposure time than the  
20 image.

39. The system of claim 9, wherein the image comprises a plurality of objects arranged to form a non-collinear pattern.